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ABSTRACT

Child acquisition of Mandarin was studied with four middle class families from Taipei, Taiwan. The 2-year-olds were taped at home playing with their families. Two of the children were taped for short periods (7 hours and 9 hours), while the other two children were studied biweekly for 14 months, which resulted in 71 hours of transcribed child tapes as well as 3 hours of adult control data. All four unacquainted children showed strikingly similar language acquisition strategies. Word class categorizations and word order are discussed in detail, using examples of the children's speech. Although Chinese selectional restrictions have few surface indicators, Chinese children regularize and double mark the linguistic relations. Their innate capacity for grammatical marking by word order and morphology is stronger than required by the language they are learning. In terms of word class categorizations, the children seem to illustrate classical Chinese grammar and philology by first assuming that all morphemes are full, free, unbound forms, equivalent to lexically full words. It is concluded that Mandarin is comparable to European languages in difficulty and rate of acquisition, as well as in the amount of experimentation and error required to master it. (SW)

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# ACQUISITION OF MANDARIN SYNTAX: "LESS" GRAMMAR ISN'T EASIER

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Since Chinese languages have no marking for tense, gender or mood, no inflectional morphology, and almost no marking for number or word class, in short, almost no grammatical morphology, there are those who have claimed that Chinese has no grammar. What, they have asked, do Chinese children even have to learn except new vocabulary? Their language must be just like telegraphic speech, so very close to their natural, intuitive, semantic, cognitive bases. It would not, they claimed, be very interesting to look at child acquisition of Chinese. Unfortunately for this Eurocentric, nativist hypothesis, foreign adults and Chinese children often speak wildly ungrammatical Chinese. This longitudinal study of child acquisition of Mandarin syntax shows that Mandarin is quite comparable to European languages in difficulty and rate of acquisition, as well as in the amount of experimentation and error required to master it. The subjects for this study were four Chinese two and two-and-a-half year olds whom I taped at play with their families in their homes in Taipei, Taiwan.

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Far from being intuitively obvious, or somehow isomorphic with a kind of "cognitive" semantic organization, grammatical strictures imposed by the elaborate selectional restrictions governing verb use and complementation are what form the syntactic organizational core of Chinese languages. These are

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acquired slowly and with considerable difficulty and inaccuracy, by the child (as well as by the adult foreigner). Grammar by selectional restriction seems far less accessible than grammar by word order, word class distinction, or grammatical morphology. Chinese selectional restrictions have few surface indicators; the verb sets and their possible complements must be learned item by item. Far from reveling in this lack of surface marking, Chinese children regularize and double mark the linguistic relations which they come to control far more rigidly and redundantly than do the adults around them. They appear to be striving toward a sort of linguistic golden mean in their amount of surface marking of grammatical relations. Their innate capacity for grammatical marking by word order and morphology is stronger than the language which they are learning happens to require. The children overmark for their own feedback, clarification, and indexing purposes, since the trend is not associated with a lack of hearer attention or comprehension, and since they are equally likely to double mark while talking to themselves as they are while playing alone.

The double marking shows up in the same two syntactic systems which seem to be most accessible to the child, and more easily described by linguists, than are regularities in selectional restrictions. These systems are: order, both word order and morpheme order; and word class categorizations. In terms of word order, although Mandarin is undergoing a very rapid order shift from "VO" to "OV," the children are the least likely of all Mandarin speakers to reorder. The Taipei children use a far more rigid VO order than do the adults around them. The

children not only used VO for sentences which were obligatorily OV, but even repeated back adult OV sentences as VO. The children are the least likely of all Mandarin speakers to innovate order changes because order seems to them to be the clearest, and sometimes only, marker of sentential relations. As such, it is one which they are loath to cast aside.

In terms of word class categorizations, the child acts as though she knew classical Chinese grammar and philology, since she first assumes that all morphemes are full, free, unbound forms, equivalent to lexically full words. Because of this, the child produces a number of decidedly un-European error types, in particular, using bound grammatical morphemes in isolation, and using auxiliary verbs and temporal adverbs as main verbs. She also assumes that all compounded verb complements are fully separable from the main verb. Chinese children make the first cut in the stream of speech which they hear by splitting off those concrete nouns for which they know the referent ("bunny," "table," "Mommy") from a general "universal verbal class." The child assumes all verb morphemes may be used interchangeably and unbound, as active, stative, or change-of-state verbs within this "universal verb class."

In fact, these generalizations are impressively accurate descriptions of the central typological characteristics of Chinese. Mandarin is historically a monosyllabic language with completely invariant syllable structures in which one morpheme very often equals one "word." However, extremely high homophony, coupled with very rapid loss of phonemes, have led the language to increase in compounded, periphrastic, and reordered forms. (There are only about 13,000 phonetically distinct syllable/"words"

in Mandarin, although about 6000 commonly-used written characters are unambiguous in writing.) All these factors combine to give the Chinese child a tremendous task even in deciding what a word is, far less in determining its usage class and function.

For example, consider this pun which three-year-old Kang Kang hit upon, much to his own and his hearers' delight.

1) wǒ jiǎng, wǒ jiǎng, wǒ jiǎng, wǒ jiǎng, wǒ Jiǎng Àyí!
I talk I talk I talk I talk I Jiang Aunt (surname)

"I'm talking, I'm talking, I'm talking, I'm talking, I'm Aunt Jiang!"

Here, the full verb for "speak" or "talk" is jiǎnghuà, literally jiǎng "talk," a main verb, plus its suffixed "speech" complement, the nominal huà "speech," literally "to talk-speech." Jiǎng can be used as an unbound main verb, but it is obligatorily transitive, e.g. wǒ jiǎng gùshi gěi nǐ tīng. "I (am, will) tell a story for you
I talk story give you hear

to hear." In addition, Kang's Aunt's last name, Jiǎng, is an exact homophone with the verb, jiǎng, "talk." So, when Kang grabbed the microphone away from his Aunt Jiang, he started out to say "wǒ jiǎnghuà "I'm talking," as evidenced by his intonation contours. However, before he got to the complement huà "speech," he hit on the pun which Mandarin copula deletion allows. So in his fifth repetition he used the noun àyí "Aunt" as his complement, producing the sentence "I'm Auntie Jiang!"

The invariant syllable/morpheme structure, which is unmarked for word class, forces the child to a linear slot-and-frame analysis as the most

suitable analytic tool for cracking the Chinese organizational code. Slot-frame works far better for Chinese than for Indo-European, much less for highly polysynthetic languages. Slot-frame also throws the child's attention back to the linear processing of the order of morphemes and words as the clearest signal of sentential relations. It highlights parallel syntactic and semantic forms in minimal pair sentences, and so is closer to an item-by-item pattern drill processing mode than to a paradigmatic inflectional array which is produced by a single highly abstract rule.

Because of these factors, Mandarin child speech eerily parallels classical Chinese grammar and literary style with its more truly monosyllablic form, broadly inclusive word classes, and enormous emphasis on syntactic and semantic parallelism as its main stylistic and cohesive devices. Child Mandarin also parallels the writing system in which a full space separates each written character, implying a full free word. A major problem for the reader of modern Chinese is deciding which characters are actually linked as compounded words, and which are truly free. (My Chinese research assistants learned to write romanized Chinese rapidly and correctly, and enjoyed using it. However, they were never able to compel themselves to write the majority of compounded words without spaces.) The Chinese child's organizing principles also parallel those of teachers of Chinese who traditionally invoke parallel structures by saying, "I can't give you a rule, just repeat my sentence.... Now change one element." Finally, the Chinese children's overmarking and regularization approximate the ways in which syntactic agreement and

cohesion are attained in Chinese, where topic and speech turn, rather than sentence-utterance, are the major organizing units. While Chinese children may act as though they had some prior-life knowledge of philology and literary Chinese, it seems fairer to credit them merely with zeroing in on exactly those syntactic organizing devices which are most central to their language, those which are most economically productive of consistency and clarity. The children first master the major devices which are most accessible to them, attaining the gross generalizations of order and word class. They have more difficulties with the featural details on usage both here, and with the far less accessible selectional restrictions.

Diachronically, far from being on the cutting edge of word order change, the children were the most conservative of all Mandarin speakers. In terms of lexical and morphological innovations, child anomalies and generalizations seem to be more diagnostic of imminent language change than the direct source of it. Child innovations function as "radioactive isotopes" which reveal and diagnose the over- or underloaded points in the language system as a whole.

Typically, the Chinese children innovate where:

1) There are several competing forms with no single clear choice among them, (e.g. choosing among periphrastic, lexical or resultative complement causatives).

2) There is no single, simple, adult way to say the meaning to be conveyed. (Many benefactives, resultatives, and instrumentals. See examples 13 and 15 below.)

3) A single grammatical construction carries an extremely diverse range of meanings. (E.g. gěi, literally "give," marks dative, directional, benefactive, and experiential. -De marks possession and nominalization, as well as adverbial manner.)

4) Homophony merges two or more forms with vastly different functions. The children avoid homophonous forms where possible (the sentence final particle .ma indicates either a question or an emphatic assertion. Children avoid it.)

5) More conventionally, a seldom-used or literary construction violates typical syntactic structure.

Of course, more than one of these factors may apply; their synergistic relationship is unclear. Chinese children do produce new forms at the "currently breaking" peaks of the waves of diachronic shifts. However, the childish innovations which are spreading through the adult model seem to be prevailing not so much because the children provide them as because the accepted innovations are more economical and harmonious with the consistency of the language system as a whole than are the forms which they replace.

The data for this study come from four, middle class, Mainlander family, Mandarin-speaking two-year-olds whom I taped at play with their families in their homes in Taipei, Taiwan. I cannot thank these families enough for their kindness, generosity, and enthusiasm, which were matched only by that of the numerous informants, assistants, and teachers who helped me with my work. I first conducted a pilot study by taping Lao Hu,

a 24-month-old boy, and Zhong Rong, a 30-month-old girl. I taped for one hour per session. (I taped seven hours within two weeks for Lao Hu, nine hours within eight weeks for Zhong Rong.) Later I conducted a longitudinal study in which I collected 14 months worth of bi-weekly, hour-long tapes of home visits to Pang Pang, a girl, who was 22 months old at the start of the project; and Kang Kang, a boy, 34 months old at the beginning. For this latter study, I engaged one young Chinese woman assistant to play with each child and to hold the mike, as I sat in the corner using a second tape recorder and mike to record a very extensive, whispered, English, running description of the context, the child's actions, and gaze. (In the pilot, I had used a single tape recorder to tape both the child and the commentary.) This contextualization was interlineated in the transcriptions, which also include all adult and other child remarks on the tape. In all, there are 71 hours of transcribed child tapes, as well as three hours of transcribed adult control data. All four unacquainted children showed strikingly similar language acquisition strategies, although they differed considerably in personality and overall amount of speech.

I will discuss word class categorizations and word order in detail here, reluctantly putting aside for now the very interesting and complex details of acquisition of time and aspect marking, and of adult Chinese speech style and input addressed to children. The difficulties of defining word classes and morpheme boundaries are considerable, as we have seen from Kang Kang's first example. Now, see how he struggles again with verb complement separability in the same verb as in the

example above, jiānghuà, literally "talk-speech." In example two, his mother has correctly used the separated form meaning "speak to you" as she reminds him of a scolding:

2a) Māmā jīntiān gěi nǐ jiǎng.le hěn duō huà, shì .bushì?
Mama today give you speak pfv. very much talk copula neg. copula

"Mama said a lot of things to you today, didn't she?"

There is no single word for "yes" or for "no" in Chinese. Answers to yes-no questions must copy the verb in the question itself. Kang deletes the wrong element in his reply, saying,

2b) *méi yǒu Ø huà
not have Ø speech

This is equivalent to saying *"you didn't speech." His answer should have copied one of the verbs in his mother's question, either:

méi yǒu. "You didn't."
not have

or: méi yǒu jiānghuà. "You didn't say anything."
not have talk speech

or: bú shì. "(It) isn't (true.)"
not copula

In example three Kang tries again by using his "all morphemes are full and free" principle in an attempt to produce a form like his mother's gěi nǐ jiānghuà "speak to you." Kang says:
give you speak talk

3) *wǒ yào jiǎng nǐ huà
I want talk you speech

This is translatable as *"I want to talk you speech." This SVO strategy is easier for him than the correct, directionally marked, form with gěi "give."

The tendency toward a free morpheme/syllable analysis is strong enough to carry over into Chinese adult speech in foreign languages. In example four a Chinese adult who is fluent in English is speaking Mandarin to her American husband, a fluent speaker of Chinese. Ying-ling said:

4) tā char-bù- charming
she char-not charming

She was attempting to convey the meaning "Is she charming?" by using the Chinese verb-not-verb question construction. She divided English word "charming" Chinese-style into a two morpheme/syllable stative verb, char+ming. She follows Chinese rather than English phonological rules for syllable structure by dividing after "r" rather than after "m."[1]

The child strategy of using all verb types interchangeably leads to errors and anomalies similar to those found in European language studies, as, for example, in example five where Zhong Rong waves her doll by the hair as she yells,

5) *wǒ shì huài toufa
I copula bad (stative verb) hair

This is exactly like an English-speaking child's saying *"I'm badding her hair." Causatives seem particularly prone to this error type, both in Chinese and in English.

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[1]Thanks to Mark and Ying-ling Hansell for this example.

However, various design features of Chinese precipitate a number of child errors which are profoundly different from those found in any other language which has been studied so far. In Chinese, the distinction between semantically full words and functors is far less pronounced than in Indo-European and many other world language groups. The Taipei children used grammatical morphemes in isolation in intonationally separated utterance contours. In example six the mother had just changed Zhong Rong's wet pants; Zhong Rong said:

6a) *mā gěi Ø huàn kù.zi.
Mama give change pants

and then, in a new utterance contour:

6b) *-le.
perfective suffix

This is comparable to an English-speaking child's saying "Mommy change pants. *-Ed.", except, of course, that the syntactic structure of Chinese is far more productive of this type of isolation of grammatical morphology.

Another very non-European error type is an artifact of the relatively equal status between adverbs and main verbs, and between auxiliary and main verbs in Chinese. Thus we have sentences like example seven, in which Zhong Rong wanted to keep on playing the piano and said,

7) *wǒ yào hái Ø.
I want still

This is equivalent to *"I want to still Ø." It is not a good Chinese sentence; she has used a temporal adverb as a main verb, since she

evidently found the adult equivalents wǒ yào jìxù tán, "I want to continue to play," and wǒ hái yào tán "I still want to play," too lexically complex. The second paraphase would involve a reordering as well.

This leveling of auxiliary and main verbs influences even adult Chinese speakers' efforts in foreign languages. In example eight my Taipei roommate wrote the following English sentence in a letter to a Chinese friend who was studying in Ohio:

8) *I'm gonna United States.

She was incredulous at my insisting that the standard English form requires two "go's" and two "to's," "I'm going to go to the United States," or even, "I'm going to be going to the United States."

A final child Chinese problem comes from an incomplete featural analysis of stative and active verbs, particularly locatives and instrumentals. Many of the Chinese locative stative verbs which are translatable by English prepositions also function as full, free, active, verbs if the actor or patient as a whole is changing location. This is comparable to English constructions such as "She downed the orange juice," although we must note that here "downed" means "drank," not "set down." In the following example, Zhong Rong was putting barrettes in my hair. She helpfully remarked:

9) wǒ bāng nǐ shàng.
I help you on

This is perfectly grammatical with the meaning, "I'll help you on." But it is only correct if it describes an action such as helping me get onto a bus or a bicycle. As it was, Zhong Rong should have used dài, "wear (an ornament)" with shàng, "on," demoted to a regular locative verb complement status, if it appears at all. Wǒ bāng nǐ dài-shàng,
I help you wear top

"I'll help you put (them) on."

Order is the clearest surface marker of sentential relations in Chinese; it is the one most used by children. They cling to SVO order in order to keep relations straight for themselves. They cling to SVO as though it were their only raft in a sea of words. They use VO for obligatory OV; they repeat adult OV back as VO. They never topicalize by reordering, although they may emphasize by repetition, periphrasis, changed stress, or pitch. They maintain this rigid order until they are quite fluent and advanced, around three years old. Children clutch at SVO in the hope that it will save them from elaborate periphrasis, from reordering, from discontinuous constructions where related sentential markers are separated by non-related terms, often pronouns; or, worst of all, from some combination of the above.

Order and reordering are most problematic where there are more than two obligatory sentence elements. These are generally agent + action, or patient + state. Datives, directionals, instrumentals, benefactives, and causatives are the most likely to cause difficulty. Furthermore, the highest-frequency object-fronted construction is governed by a number of features. These require: that the utterance have a main verb which

describes a physical-action, that it be transitive, that it have a range or goal complement, and that its patient be some physical object which is being manipulated as a whole. Violation of any of these features produces a bad sentence; children (and foreign speakers) frequently violate them all. For example, one can say:

10) wǒ bǎ jīdàn chīguāng.le
I obj. marker chicken egg eat finish pfv.

"I've eaten up the chicken egg."
"I've polished off the chicken egg."

However, the following is not acceptable:

11) *wǒ bǎ tā kànguò
I obj her see past experience

This does not translate as "I saw her" or "she was seen by me"; it comes closer to English gibberish like *"I her was seen." However, control of unmarked, featural, selectional restrictions is peculiarly difficult for children. This difficulty augments the children's already existing preference for SVO.

Example twelve illustrates the children's conservative tendency to adhere to SVO where OV is the only acceptable construction. Trying for a sentence like number ten above, Pang Pang proudly told us that she had eaten up all of her hard boiled egg:

12) *wǒ chīguāngdàn.le
I eat finish egg pfv

*"I've eat-egg-ed."

Here she suffixes dàn "egg" as a sort of complement of the main verb and its completion marker. Then she suffixes the verbal perfective -.le onto

the noun "egg," producing a highly unconventional form. However, in so doing, she has spared herself not only object fronting, but also object marking with bǎ, as well as the strong stylistic stricture which requires speakers to disambiguate monosyllabic dàn "egg" by compounding it as jīdàn, "chicken egg."

In number thirteen Zhong Rong is at a more sophisticated stage. She is experimenting with reordering before she has complete mastery of the relevant features; here again, a standard gloss on the utterance form she produces implies that the patient as a whole is acted upon. Waving her dolly by the hair, Zhong Rong uses bǎ in its correctly fronted order:

13) *wǒ bǎ tā shūshutóu
I obj. her comb comb head

This sounds worse in Chinese than in the English, which is comparable to *"I combed the doll." Zhong Rong needs to substitute in the benefactive gěi "give" as a full verb producing wǒ gěi tā shūshū tóu. Or, she
I give her comb comb head

might abandon the reduplicated verb form which is associated with diminutives and baby talk, but which is completely incompatible with the ba construction. A correct use of bǎ requires a full verb plus a complement plus a completion suffix, i.e.: wǒ bǎ tā tóufǎ shūhǎo. le. It may be
I obj. her hair comb finish pfv

that Zhong Rong is using a strictly linear, morpheme-by-morpheme modus operandi. She takes the three morpheme, reduplication plus complement, shūshūtóu (idiomatically "give her (head) a little combing"), to be
comb comb head

equivalent in the number of tokens to the obligatory form. There, main verb+completion suffix + perfective must co-occur with the bǎ construction. Another, not mutually exclusive, possibility is that Zhong Rong has merely linked up a correctly ordered bǎ sentence with the most familiar verb form which she knows from family routines for "combing baby's hair," the reduplicated shūshūtóu. Given these complexities, we can see why she at least tried out a sentence which required little revision from the forms which she already had under good control.

The following example is a further illustration of the tendencies to treat all morphemes which are not concrete nouns as full verbs, to avoid discontinuities, and to try for SVO. Zhong Rong was comparing her tiny, new, empty, bookbag with my large ragged backpack full of books. She said:

14) *wǒ.de bǐjiào Ø shūbāo
I possessive/ nominalizer comparatively bookbag

*"Mine comparatively Ø bookbag."

Here she used the comparative adverb bǐjiào as a full main verb, thus avoiding the standard, complex, discontinuous form:

wǒ.de bǐjiào xiàng shūbāo.de yàng.zi.
Mine comparatively resemble bookbag mod. type

"Mine looks more like a bookbag."

Here is a final attempt toward a consistent and redundant surface marking of sentential relations which would use both redundant grammatical morphology and the preferred, suffixed, complement forms. Pang Pang is describing what she can do with her toy sword:

15) *gěi nà.me duō huàirén dǎsǐdiào.le
give so many bad person beat die off pfv.

*"Make so many bad people beat to death dead-ed."

She leaves us in no doubt as to her intentions, since she uses all the markings for transitivity, number, end state, and perfective, ended event, which the adult form would not mark, i.e. kěyǐ dǎsǐ hěn duō huàirén,
can beat die very many bad person "[It] can kill a lot of bad people."

All in all, the Chinese children do indeed have to struggle hard and experiment long to master the syntactic system of their language. It is as arbitrary and formalized as any other, while being less surface defined than most. We observers should not mistake a scarcity of index tags for a lack of complexity or consistency in internal systems design. Grammar by selectional restriction is extremely difficult to master. Chinese children attune themselves and adhere to very powerfully regularized grammatical markings by order, word class, and grammatical morphology because they desire and need more of the surface regularities which they can process than the adults around them or the language itself require. The children's ability to define and innovate such markers is tribute to their innate ability to distinguish and control arbitrary linguistic systems. Their sensitivity in detecting precisely the organizing principles which are most basic and central to their native language displays the power of their vision, first sighting and then following the most major planets as they orbit in the huge swirling galaxy of their language as a whole.